

ENGINEERING STATEMENT

On behalf of
Hope Christian Church of Marlton, Inc.

Amendment to BMPED-20041101AFA

Station WVBV
Medford Lakes, New Jersey

March 2005

Charles W. Loughery
532 Ridge Road
Telford, Pennsylvania 18969
Tel: (215) 453-6543

DECLARATION OF CHARLES W. LOUGHERY

I hereby declare:

That I assisted in the preparation of the attached engineering Section VII and related exhibits as an amendment to BNPED-20000229AAL on behalf of Hope Christian Church of Marlton, Inc., applicant for a minor change to WVBV, a Noncommercial Educational FM station at Medford Lakes, New Jersey.

That I have been involved in radio and television broadcast engineering for 29 years and have prepared and submitted engineering and related documents for filing with the Commission since 1979.

That I hold a General Class Radiotelephone License (since 1977).

That all statements contained within these engineering sections of form 340 and related exhibits are true and accurate to the best of my knowledge and belief, and as to statements made of belief, they are believed to be true, except for information for which the Federal Communications Commission takes official notice.

March 14, 2005

Charles W. Loughery
532 Ridge Road
Telford, Pennsylvania 18969

William C. Luebkekmann, Jr.
33 Tinsmith Lane
Marlton, New Jersey 08053
Tel: (856) 983-8844

DECLARATION OF WILLIAM C. LUEBKEMANN, JR.

I hereby declare:

That I assisted in the preparation of the attached engineering Section VII and related exhibits as an amendment to BNPED-20000229AAL on behalf of Hope Christian Church of Marlton, Inc., applicant for a minor change to WVBV, a Noncommercial Educational FM station at Medford Lakes, New Jersey.

That I have been involved in radio and television broadcast engineering on an intermittent basis for 30 years and have prepared and submitted engineering and related documents for filing with the Commission since 1999.

That I hold a BS in Electrical Engineering from Drexel University (1980) and a General Class Radiotelephone License (since 1978).

That all statements contained within these engineering sections of form 340 and related exhibits are true and accurate to the best of my knowledge and belief, and as to statements made of belief, they are believed to be true, except for information for which the Federal Communications Commission takes official notice.

March 14, 2005

William C. Luebkekmann, Jr.
33 Tinsmith Lane
Marlton, New Jersey 08053

James M. Smith
6 Surrey Court
Marlton, New Jersey 08053
Tel: (856) 983-1055

DECLARATION OF JAMES M. SMITH

I hereby declare:

That I assisted in the preparation of the attached engineering Section VII and related exhibits as an amendment to BNPED-20000229AAL on behalf of Hope Christian Church of Marlton, Inc., applicant for a minor change to WVBV, a Noncommercial Educational FM station at Medford Lakes, New Jersey.

That I have been involved in radio and television broadcast engineering for 2 years and have assisted in the preparation and submission of engineering and related documents for filing with the Commission since 2003.

That I hold a BS in Electrical Engineering from Rutgers University (1993) and an MS in Computer Science and Engineering from Clemson University (1995).

That all statements contained within these engineering sections of form 340 and related exhibits are true and accurate to the best of my knowledge and belief, and as to statements made of belief, they are believed to be true, except for information for which the Federal Communications Commission takes official notice.

March 14, 2005

James M. Smith
6 Surrey Court
Marlton, New Jersey 08053

Facilities Proposed

This amendment is “minor” under 47 CFR §73. (a)(1) and, as shown below, the proposal complies with 47 CFR §73.509 and 47 CFR §73.525. See the attached Engineering Exhibit for details of the facility proposed and demonstration of compliance with all applicable rules.

Using conventional contour protection as specified in 47 CFR §73.509, this application fully protects all authorized and previously cutoff proposals operating co-channel, first, second and third adjacent.

Additionally, this application protects the facilities of Station WWFP, Brigantine, New Jersey, as proposed in the application of CSN International to modify the construction permit for that station (File No. BMPED-20041101ABZ) which application was simultaneously filed with BMPED-20041101AFA. A Contingent Application Agreement between CSN and Hope Christian Church of Marlton, Inc. is attached as Exhibit 1. Under section 47 CFR §73.3517(e), the Commission may consider CSN's proposed rather than its authorized facilities in passing upon this application.

Application BNPED-20000412ADC, Hammonton, New Jersey, has already been ruled as untimely filed by the Commission and can be ignored.

Figures 4-5 are a polar plot and tabulation of the proposed azimuth DA pattern.

ENGINEERING EXHIBIT
Hope Christian Church of Marlton, Inc.
Station WVBV
Application for Minor Changes
Medford Lakes, New Jersey

This application is being filed due to loss of the site specified in the current CP and will state with particularity the facts and circumstances which warrant its acceptance.

This Exhibit consists of the following components:

- 1) Details regarding the loss of original site
- 2) Preclusion study – based upon available transmitter sites
- 3) Preclusion study – based on all 20 non-commercial channels
- 4) Request for waiver of 47 CFR §73.316

The applicant currently holds a construction permit for Non-Commercial Educational station WVBV, Medford Lakes, New Jersey. Reasonable assurance of site availability was obtained prior to making application for the construction permit by arranging to co-locate on a new communications tower to be built by Verizon Wireless, the location of which was ideal to provide service to our city of license. This type of cellular tower is generally permitted in the New Jersey Pinelands.

Subsequent to that and due to the particular and unique situation in the New Jersey Pinelands, which will be explained in detail in a later section of this application, it has become impossible for Verizon Wireless to acquire the necessary zoning approvals to begin construction. A number of court cases are pending, but given the wide statutory latitude afforded the New Jersey Pinelands Commission on a state and federal level, settlement and/or accommodation is highly unlikely. At this time it is highly unlikely that this tower will be built at or near the original location, or within a time frame which would accommodate construction of WVBV, making it no longer suitable for the applicant's purposes.

Having lost the use of its FCC-authorized site, the applicant has undertaken a careful, comprehensive search for a replacement site. Additionally, a search of all twenty (20) non-commercial educational channels was undertaken to determine the potential for use of a more suitable channel. As shall be shown, there are no other sites or channels available.

The applicant is severely impacted by transmitter site restrictions imposed as a result of the New Jersey Pinelands and related protection of the same. Indeed, as shown below in the Area to Locate study, legal restrictions on land use within the Pinelands precludes the permittee's use of any available site that complies with the Commissions allocation and city-coverage rules for non-commercial educational stations.

However, the applicant can construct a facility that does not result in prohibited contour overlap, and which provides 60 dBu coverage of Medford Lakes, if it is permitted a waiver of 47 CFR §73.316(b) (15 dB minimum-to-maximum ratio). Such a waiver is hereby requested because, as shown below, it affords the best alternative under the rules for establishing the new Medford Lakes station.

Preclusion Study Area to Locate Transmitter

Upon realizing the original site would not be available, the applicant began a comprehensive search for another location to construct a tower. The city of license is Medford Lakes, New Jersey with reference coordinates of N 39-51-30 and W 74-48-12. In order to establish or construct a broadcast facility that serves the city of license and that *does not interfere* with existing broadcast stations, that facility must be located in the crescent-shaped Area to Locate depicted in Figure 1. This area is outside of the interfering 40 dBu contour of the following co-channel stations: WBJB, WWFP, WXGN and WKHS. It is also outside of the interfering 54 dBu contour of 1st adjacent station WYRS and the protected, non-interfering 60 dBu contour of 2nd adjacent stations WRTI and WHYY-FM.

As will be shown in the following sections, construction of a new broadcast facility in the Area to Locate is specifically prohibited by both Federal and New Jersey State law. As will also be shown, existing facilities within the Area to Locate are unsuitable due to the interference that would result from their location, and/or their inability to serve the city of license.

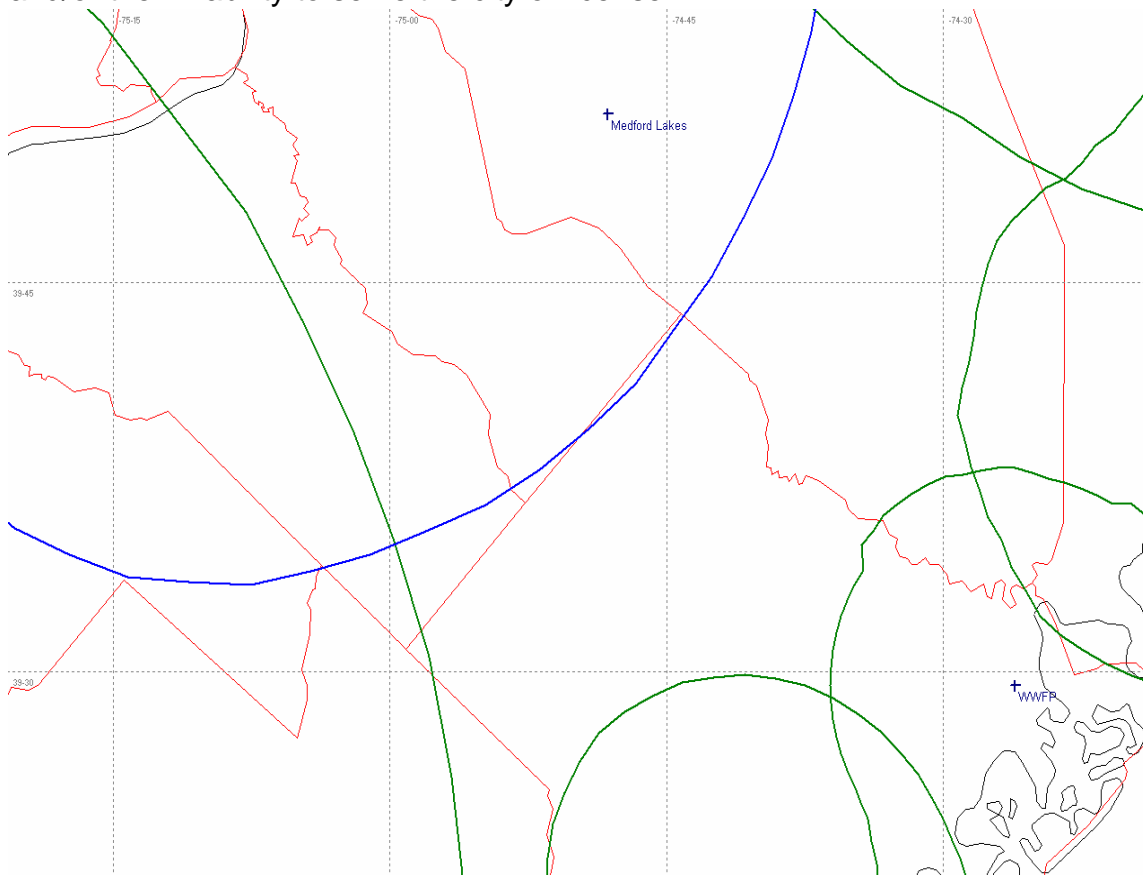


Figure 1: Area to Locate - WVBV, Medford Lakes, New Jersey

A. Construction of New Facilities

The following sections demonstrate why it is not possible to construct a new broadcast facility within the Area to Locate depicted in Figure 1.

The New Jersey Pinelands National Reserve

The Pinelands National Reserve consists of approximately 1.1 million acres in southern New Jersey. It represents 22% of the state's total land area, has an average population density less than 10 persons per square mile in the interior, and includes portions of seven counties (Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, and Ocean), and all or parts of 56 municipalities. The New Jersey Pinelands is so unique that the United States Congress actually created a new category for it, establishing in 1978 the Pinelands National Reserve as the country's first National Reserve.

In the Pinelands National Reserve, specific areas have been designated for environmental protection, forestry and agriculture. As a United States Biosphere Reserve, the Pinelands also serves as a laboratory for fostering a harmonious relationship between humans and their environment through a program of research that integrates the social, physical and biological sciences. As provided in the federal law, New Jersey Governor Brendan T. Byrne established the Pinelands Commission by executive order on February 8, 1979 and gave it the responsibility of evaluating the Pinelands' resources and planning how best to balance their protection with new development.

The New Jersey Legislature, at Governor Byrne's request, supplemented the federal law by passing the Pinelands Protection Act in June, 1979. The Act affirmed the limitations on development which the Governor had put into effect. It also established a requirement that all county and municipal master plans and land use ordinances be brought into conformance with the Pinelands Comprehensive Management Plan. The Protection Area Plan was adopted on November 21, 1980 and became effective under state law on January 14, 1981. This final version also constituted the Comprehensive Management Plan for the entire Pinelands National Reserve. It was approved by United States Secretary of the Interior Cecil D. Andrus on January 16, 1981.

The Pinelands Comprehensive Management Plan (also referred to as the “CMP”) subdivides the Pinelands National Reserve into the following Pinelands Management Areas (also referred to as “PMAs”):

1. Preservation Area Districts
2. Forrest Areas
3. Agricultural Production Areas
4. Rural Development Areas
5. Regional Growth Areas
6. Pinelands Towns
7. Military and Federal Installation Areas
8. Pinelands Villages
9. Special Agricultural Production Areas

The overall distribution of these areas is shown in Figure 2, the New Jersey Pinelands Land Capability Map.

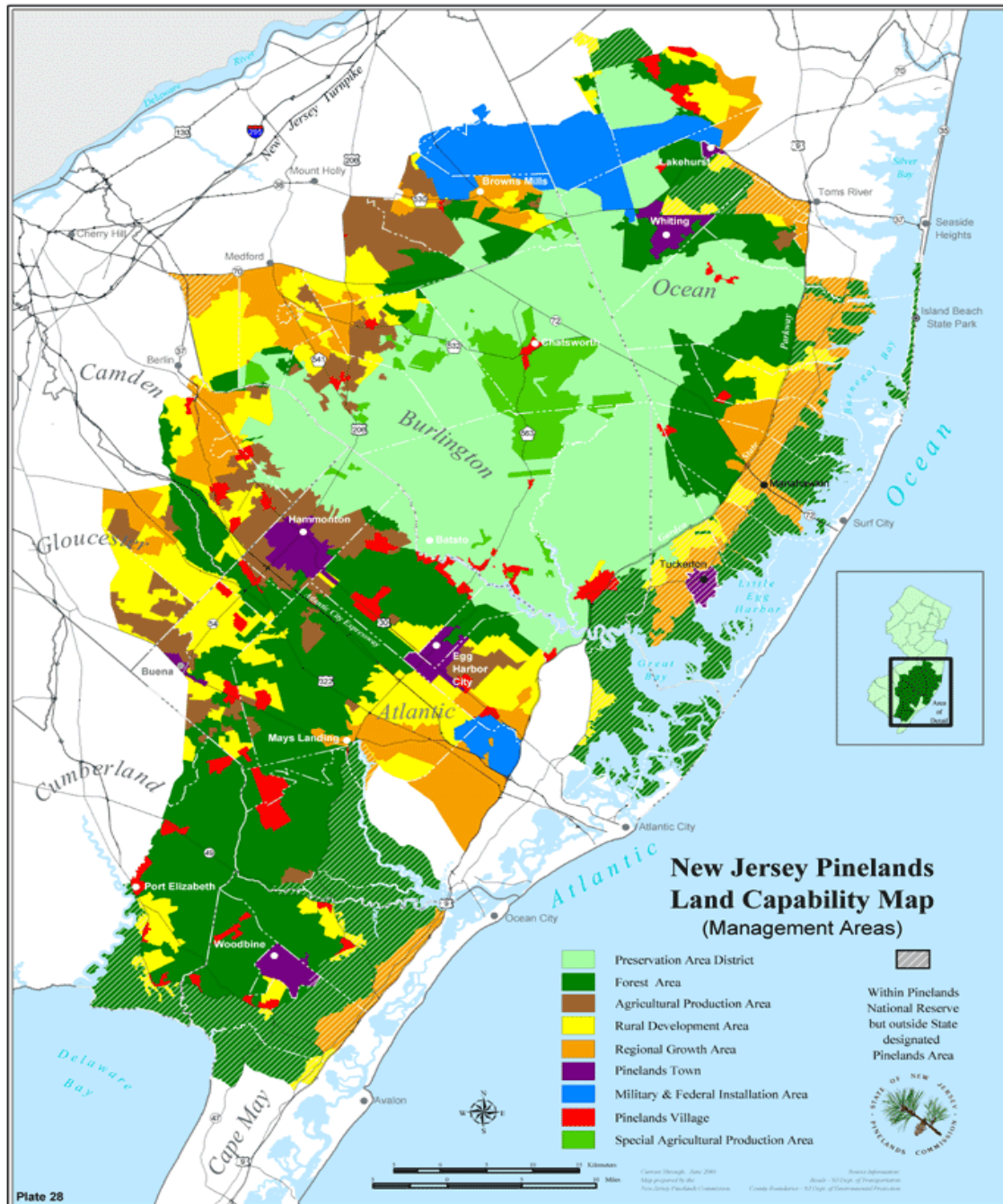


Figure 2: New Jersey Pinelands Land Capability Map

The CMP states that in all Pinelands Management Areas other than Regional Growth Areas and Pinelands Towns, provisions for “local communications facilities” are provided, so long as they meet the standards set forth in N.J.A.C. 7:50-5.4(c). With respect to Regional Growth Areas and Pinelands Towns, however, the Comprehensive Management Plan additionally states:

“It is also recognized that a municipality, county, State or Federal agency may adopt more restrictive regulations, provided that such regulations are compatible with the goals and objectives of this Plan [*the CMP*]. In such cases, all development must adhere to the more restrictive regulations.” [N.J.A.C. 7:50-5].

Therefore, Pinelands Towns and Regional Growth Areas are subject to regulatory restrictions that must meet or exceed the stringency of the Comprehensive Management Plan. Thus, the provision for “local communications facilities” as set forth in N.J.A.C. 7:50-5.4(c) serves as the minimally restrictive set of regulations governing local communications facilities in *all Pinelands Management Areas*.

The Comprehensive Management Plan defines “local communications facilities” as follows:

“‘Local communications facility’ means an antenna and any support structure, together with any accessory facilities, which complies with the standards in N.J.A.C. 7:50-5.4 and which is intended to serve a limited, localized audience through point to point communication, including cellular telephone cells, paging systems and dispatch communications. **It does not include radio or television broadcasting facilities or microwave transmitters.**” [N.J.A.C. 7:50-2.11, emphasis added.]

The construction of a new broadcast station tower is thus specifically excluded in the Comprehensive Management Plan definition of “local communications facility.”

Therefore, since only “local communications facilities” are permitted within the Pinelands Management Areas, and a broadcast station tower does not meet the Comprehensive Management Plan definition of a “local communications facility”, the construction of such a tower is not permitted within the Pinelands Management Areas, *i.e.*, anywhere in the colored-in areas shown on the map reproduced as Figure 2..

To show the extent of preclusion due to Pinelands laws and regulations, the next diagram, Figure 3: Composite Area to Locate, shows the Area to Locate in Figure 1 overlaid with the Pinelands Management Area designations shown in Figure 2.

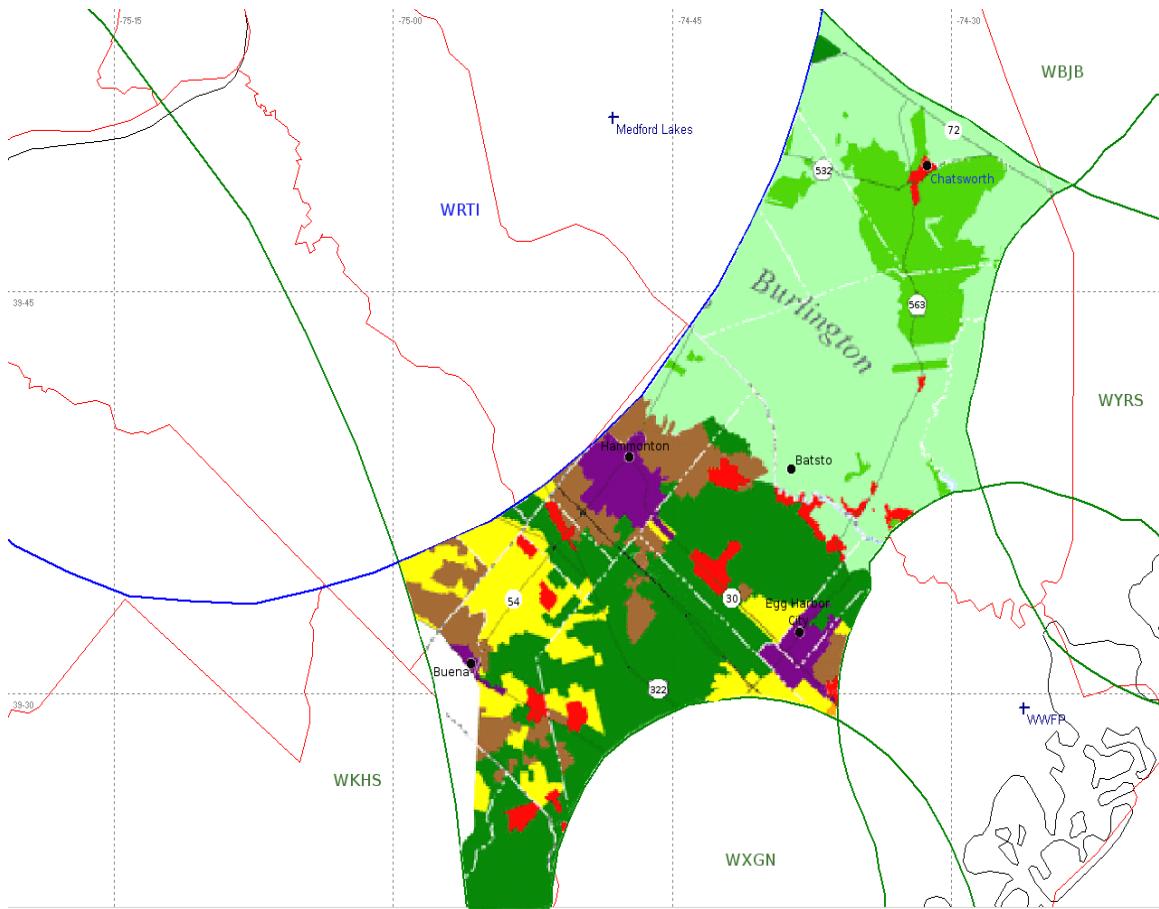


Figure 3: Composite Area to Locate - WVBV, Medford Lakes, New Jersey

As can be seen on Figure 3, the vast majority of the Area to Locate is excluded as a potential construction site, as it directly overlaps the Pinelands Management Areas. One small portion of the Area to Locate does not fall within the PMAs, and is located to the southwest of Buena, New Jersey. However, this area is too far south of Medford Lakes to be feasible. The most favorably placed tower location in this area would result in a maximum output power insufficient for the 60 dBu contour to reach the city of license. (See next section for additional explanation.)

As has been shown under both Federal and New Jersey State Law, it is not possible to construct a new broadcast station facility within the Pinelands Management Areas, nor is it feasible to construct a non-interfering broadcast station within the small percentage of the Area to Locate not located within the Pinelands Management Areas.

B. Co-Location with Existing Facilities

The Pinelands Management Areas were established on January 16, 1981. Currently, its area is approximately 1/3 publicly owned, and 2/3 privately owned. All new development, whether public or private, is now subject to the Comprehensive management plan. Existing development, however, was permitted to remain in place.

As shown in Section A, Construction of New Facilities, the provision for “local communications facilities” as set forth in N.J.A.C. 7:50-5.4(c) serves as the minimally restrictive set of regulations governing local communications facilities in all Pinelands Management Areas. This definition specifically excludes broadcast and microwave facilities, but does permit facilities “intended to serve a limited, localized audience through point to point communication, including cellular telephone cells, paging systems and dispatch communications.” [N.J.A.C. 7:50-2.11] Thus, some two way, cellular and paging facilities have been permitted under the CMP.

The following table shows all of the FCC registered towers that were constructed prior to the creation of the PNR/CMP, as well as those that were built in accordance with N.J.A.C. 7:50-5.4(c). The applicant has studied each tower carefully and determined that none of them are suitable for construction of this station due to both their location and the inability to cover the city of license with a 60 dBu signal.

In each case, an antenna height of 10% less than the tower height was used, although other heights on the same tower always produced similar results. An optimal antenna pattern was developed that incorporated the maximum permitted ratio of maximum-to-minimum power in accordance with 47 CFR §73.510. The maximum power toward Medford Lakes was calculated based on the required protections of existing co-channel and 1st, 2nd and 3rd adjacent channels. The use of each and every tower was precluded by the inability to run enough power to cover the city of license with a 60 dBu signal.

The table below shows each tower, its location and the co-channel or adjacent station with the greatest impact on the amount of power that could be run from that site.

Tower ASR =====	Latitude =====	Longitude =====	Primary Limiting Station =====
1040066	39-31-09	74-41-35	co-channel WXGN
1045048	39-33-18	74-42-52	co-channel WXGN
1045799	39-38-41	74-49-31	2 nd adjacent WRTI
1045851	39-51-52	74-32-25	co-channel WBJB-FM
1045852	39-26-13	74-52-06	co-channel WXGN
1046923	39-50-34	74-32-40	co-channel WBJB-FM
1046959	39-37-33	74-47-44	co-channel WWFP
1046968	39-36-06	74-44-57	co-channel WXGN
1048339	39-37-31	74-47-23	co-channel WWFP
1049923	39-32-49	74-38-19	co-channel WXGN
1055074	39-32-59	74-44-07	co-channel WXGN
1058659	39-37-58	74-48-16	co-channel WWFP
1061417	39-37-04	74-51-16	2 nd adjacent WRTI
1061710	39-33-20	74-44-48	co-channel WXGN
1064293	39-51-52	74-32-41	co-channel WBJB-FM
1210719	39-39-02	74-47-27	co-channel WWFP
1210857	39-40-16	74-46-27	2 nd adjacent WRTI
1212215	39-28-52	74-50-58	co-channel WXGN
1237802	39-51-51	74-32-24	co-channel WBJB-FM

As shown in the table, without a waiver of some type, no existing facilities meet the requirement of covering the city of license without causing considerable interference to the primary limiting station shown above and often additional stations as well.

**Preclusion Study
Of All 20 Non-Commercial Channels
Showing That Only Channel 213
Is Available to Serve the City of License**

Having failed to locate a suitable site, the applicant undertook a study of all 20 non-commercial channels to see if another channel might be suitable for coverage of the city of license. The fact that there is currently a freeze on the filing of major changes is irrelevant since it has been shown that none of the channels will work.

Method

Beginning with the previously mentioned reference coordinates of the city of license, N 39-51-30 and W 74-48-12, each channel was evaluated using 0.1 kW at 30 meters (the minimum required for an omni-directional class A station). The reference coordinates of the city of license cannot be inside the interfering contour of any other station because that would force the protected contour to intersect that interfering contour (see 47 CFR §73.509).

Study

The results of the study show that the city of license coordinates are inside of the:

<u>Channel</u>	<u>City of License Reference Coordinates Inside:</u>
201	40 dBu contours of co-channel WNJS & WNJT
202	54 dBu contours of 1 st adjacent WNJS & WNJT
203	54 dBu contour of co-channel WXPB
204	54 dBu contour of 1 st adjacent WBZC (CP and license) 54 dBu contour of 1 st adjacent WXPB
205	40 dBu contour of co-channel WBZC (CP and license)
206	40 dBu contour of co-channel WWCJ (License only) 40 dBu contour of co-channel WWFM 54 dBu contour of 1 st adjacent WBZC (CP and license)
207	40 dBu contour of co-channel WNJB (CP and license) 54 dBu contour of 1 st adjacent WSJI

208	40 dBu contour of co-channel WSJI
209	40 dBu contours of co-channel WGLS & WRDR 54 dBu contour of 1 st adjacent WSJI
210	54 dBu contour of 1 st adjacent WRTI
211	40 dBu contour of co-channel WRTI
212	54 dBu contour of 1 st adjacent WRTI
213	Available
214	54 dBu contour of 1 st adjacent WHYY-FM
215	40 dBu contour of co-channel WHYY-FM
216	40 dBu contour of co-channel WWNJ 54 dBu contour of 1 st adjacent WHYY-FM
217	40 dBu contour of co-channel WRTQ
218	<p>This frequency could be used approximately 16 km to the ESE of Medford Lakes, but the tiny Area to Locate has all of the same restrictions as the Area to Locate for channel 213. All of the same arguments pertaining to the New Jersey Pinelands apply to this area as well.</p> <p>Furthermore, if a station could be built in this Area to Locate, it would be limited by the 40 dBu contour of co-channel WNYE, the 54 dBu contour of 1st adjacent WRTQ and the 60 dBu contour of 3rd adjacent WHYY-FM. The maximum output power would be insufficient for the 60 dBu contour to reach the city of license.</p>
219	40 dBu contour of co-channel WKDU
220	40 dBu of 3 of the 4 mutually exclusive stations filed in Barnegat, NJ. Short-spaced to commercial stations WVLT & WXTU.

Conclusion

As can be seen from this table, channel 213 is the only channel that is available to provide service to our city of license, Medford Lakes, New Jersey.

Investigation of Alternate Approaches

Having attempted to locate another site on which to construct a tower, locate a pre-existing tower, or find another non-commercial channel, all without success, the applicant next began to consider any novel and/or unique approaches. This was only attempted when all other possible solutions were examined and ruled out.

The applicant began by searching for existing towers that were only slightly outside the Area to Locate. A primary consideration was to stay sufficiently close to the city of license such that the desired service could still be provided. This search led to the consideration of the tower owned and operated by WNJS-TV, New Jersey Public Broadcasting. This tower is unusually tall and is close enough to the city of license to allow adequate coverage, and is only slightly outside of the Area to Locate. The applicant previously proposed to use this unusually tall tower to support an Alternate Showing to Demonstrate Compliance with 47 CFR §73.509 and, to the extent necessary, request a waiver from 47 CFR §73.509. This proposal was submitted to the Commission on November 1, 2004.

After submitting this alternate showing, the applicant continued to consider additional ideas, of which three seemed to be feasible. All three approaches are described in the following sections, and each would require a waiver. After carefully considering all three, the applicant now proposes an approach that involves no prohibited overlap and permits coverage of the city of license, but which requires a waiver of 47 CFR §73.316(b) (15 dB maximum to minimum ratio) in order to meet these threshold allocation standards.

While the previous waiver request would arguably cause some overlap if viewed solely in two dimensions, this waiver request has no harmful effect on anyone or any station. It is a waiver to a purely technical rule and is well within the scope of designated authority for which a waiver can be granted.

The applicant believes that the particularity of the facts and circumstances in this case warrant such a waiver, and will demonstrate in this section that such a waiver will cause absolutely no harmful interference to anyone. Additionally, the applicant's situation with respect to the Pinelands National Reserve is singularly unique, and a waiver in this extraordinary situation will not serve to undermine existing protections afforded by FCC rules.

Analysis of Possible Waiver Requests Dealing With Protected 60 dBu Contour

The applicant first considered a potential waiver request from 47 CFR §73.515 with regards to the coverage of the city of license with a 60 dBu contour. They also considered a requesting a waiver from 47 CFR §73.515 with regards to the use of the Longley-Rice method for proving adequate coverage to the city of license. These methods were rejected for several reasons.

By their very nature, either of these potential waivers would result in inadequate coverage to the city of license, which is incompatible with the applicant's desire to provide meaningful service to both the city of license, Medford Lakes, as well as the studio location and applicant's headquarters in Marlton. Indeed, the applicant's studies have shown that, if a city-coverage waiver of some type were sought, the resulting coverage would be less than 60 dBu by a *substantial* margin, resulting in an inefficient use of the radio spectrum. In each case, the shortfall is caused by the applicant's inability to receive incoming overlap or cause outgoing overlap while complying with 47 CFR §73.316, the Commission's rules on antenna design.

A thorough study was made and each tower in the Area to Locate was found to fall into one of three categories based on which station(s) are precluding their use. The first group consists of four towers that are located an average of 1.8 km from the 40 dBu interfering contour of co-channel WBJB-FM, rendering these sites completely unusable without significant incoming overlap. Also, due to the orientation of the city of license from these sites and the close proximity of this co-channel contour, there are no available antenna technologies that would allow the applicant to apply for any type of a waiver.

The second group consists of three towers that are located an average of 1.2 km from the 60 dBu protected contour of 2nd adjacent WRTI and 2.4 km from the 60 dBu protected contour of 2nd adjacent WHYI-FM, rendering these sites completely unusable without significant outgoing overlap. Since the city of license is in the same direction as these contours, the limitation is to forward power and directly affects the applicant's ability to serve the city of license. Antenna design is not an issue from these sites.

The search for an acceptable site was thus narrowed down to the third group consisting of twelve towers. These towers are all precluded due to their proximity to the 40 dBu interfering contours of co-channel WWFP and/or WXGN, rendering every one of them unusable without a waiver of 47 CFR §73.316(b) (15 dB maximum to minimum ratio).

A further examination of each of these twelve towers found secondary preclusions ruled nine of them as impractical due to low height, excessive power requirements, RF safety issues (due to the low height and excessive power), and proximity to population causing TV-6 issues. Of the three remaining towers, one of them was less than 0.5 km from the 40 dBu interfering contour of co-channel WWFP, and the other was less than 3 km from the 40 dBu interfering contour of co-channel WXGN. This left the applicant with only a single choice for a proposed location.

The proposed tower is the highest one of all nineteen that were evaluated, which gives the applicant the greatest ability to maximize coverage while minimizing effective radiated power. It is also located in an extremely rural location of the Pinelands, which makes it possible to show TV-6 interference is at or below an acceptable level.

From this location and without any type of waiver, coverage of the city of license would be approximately 47 dBu **at best**, and coverage of the studio location in Marlton would be approximately 42 dBu **at best**. A Longley-Rice study was performed and produced even worse results, showing a coverage of approximately 30 dBu at each location. As stated previously, the resulting coverage with either of these methods is less than 60 dBu by a **substantial** margin, and this is why a waiver of 47 CFR §73.316(b) (15 dB maximum to minimum ratio) is being requested.

Furthermore, the Commission already has made, consistent with the allocation scheme referenced in *American Educational Broadcasting*, an affirmative determination under Section 307(b) of the Act that there is a public need for a new non-commercial educational station at Medford Lakes. To build such a station with woefully substandard coverage would not effectuate that public interest finding.

To summarize, the applicant submits that considering a waiver of the 60 dBu coverage contour or use of the Longley-Rice method do not afford an acceptable level of coverage of the city of license. The best possible coverage of the city of license is in the best interest of both the public and the applicant, and harmonizes with the finding of the Commission.

Request for Waiver of 15 dB Maximum-to-Minimum Ratio

The applicant has also considered, and is requesting a waiver from, 47 CFR §73.316 with regards to the 15 dB maximum front-to-back ratio. This waiver request is the most desirable for several reasons, most important of which is that it allows the applicant to provide adequate service to the city of license and the surrounding area, including Marlton, New Jersey, the location of the applicant's headquarters and the planned location of the principal studio facilities.

Since this type of waiver is to a technical rule only, it has no negative impact on anyone. No one will be harmed in any way, there will be no overlap or interference, and there is no potential whatsoever to cause harmful effects to any other station. In this regard, the applicant submits that this waiver makes the most efficient use of the radio spectrum, and is most consistent with the intent and reasoning of the Commission's rules regarding the coverage of the city of license and the protection of other stations.

The applicant's understanding of 47 CFR §73.316 with respect to the 2 dB per 10 degree maximum rate of change is that it only applies over arcs where protection of other non-commercial station service areas is required. This would be where the applicant's interfering contour is protecting the protected contour of another station. The applicant has been careful not to exceed the 2 dB limit over those particular arcs, and believes itself to be in compliance with that part of the rule. This interpretation of the rule was applied by the Commission in granting an application, on August 14, 2003, for Station WBZC, Facility ID 7844, Pemberton, NJ (BPED-20020204AAW).

The 2 dB per 10 degree maximum rate of change is only exceeded at azimuths of 0 to 20 degrees and 270 to 310 degrees (with respect to true north). There are no stations that the applicant is required to protect on these azimuths, and so the 2 dB per 10 degree maximum rate of change rule does not apply.

As evidence that antenna patterns of this nature can indeed be built and in fact have been built, the applicant undertook a study of the Commission's FM antenna database to determine if there were any stations currently licensed with such patterns. Many hundreds of stations were found to have patterns that exceeded the 15 dB minimum-to-maximum ratio, including commercial, non-commercial and translator stations. There are no doubt many reasons why such antennas have been used, including, but not necessarily limited to, terrain, proximity to bodies of water and protection of RF quiet zones. The point here is simply that such antennas can indeed be built and they do work.

A few of the non-commercial stations who currently have such patterns are WAMK, BLED-19910829KA; WFGB, BLED-19911121KB; WEDW-FM, BLED-19920113KA; WVLS, BLED-19970509KA; KSOR, BMLD-20010926ABP and KPLU-FM, BLED-19890925KA. All of these stations exceed the 15 dB maximum-to-minimum ratio by a significant amount.

Having concluded that such antenna designs are practical and have been used by many stations, the applicant sought to demonstrate in particular that the requested pattern can actually be built. The applicant retained Shively Labs to construct an actual antenna array and test it on their outdoor antenna range. A complete proof-of-performance report from Shively Labs, authored by Robert Surette, one of the foremost antenna design engineers in the nation, is attached to this application and proves without any doubt whatsoever that such an antenna can indeed be built. In fact, the report shows that this antenna ***has been built and thoroughly tested***, in accordance with standard Commission practices, and it performs exactly as designed. Although we are only seeking a construction permit at this time, ***the attached report is suitable for a license application.***

The history of 47 CFR §73.316 dates back to the 1950's, when the instrumentation on the antenna test range was powered by vacuum tubes. Measurement of high maximum-to-minimum ratios was extremely difficult, if not impossible. With advances in the state-of-the-art and the use of modern, sophisticated test equipment, such measurements are routinely possible and highly accurate. Robert Surette's attached report attests to this fact.

This tested antenna pattern fits within the requested pattern shown on our application, and fills out more than 85% of the pattern as required by the rules. The larger licensed pattern, as in all cases, will afford the applicant some flexibility should the antenna or tower ever need to be replaced.

Tower Selection

The previous listing of towers located within our Area to Locate shows that they fall within three main groups. These groups were previously analyzed in this document. The desired tower is significantly taller than any of the other towers, making adequate coverage of the city of license possible with a reasonable amount of power. This tower is far enough away from the protected stations that an adequate antenna can be constructed and, as shown in the attached proof-of-performance study by Shively Labs, has been **constructed and tested**. Furthermore, the tower is located in an unpopulated area which makes it possible to comply with 47 CFR §73.525 regarding TV-6 interference.

Coverage vs. No Coverage

The applicant would further like to point out that this is a matter of “coverage” or “no coverage”. This application does not propose increased coverage for the sake of increased coverage alone. The applicant is not attempting to squeeze out a few more people or a few more square kilometers of coverage. This application is being presented as a means of **survival**.

Without this waiver, the applicant will not have lesser coverage but rather will have **no coverage** (and no station). The applicant enjoys **no** choices and **no** options, due to Federal and New Jersey State laws governing the Pinelands National Reserve.

Further Section 307(b) Considerations

As noted above, a grant of this waiver would further the goal of Section 307(b) of the Act to provide new, local service to the unserved residents of Medford Lakes, New Jersey. On the other hand, if the applicant is unable to construct this station, the residents of Medford Lakes, New Jersey will lose their only local station forever contrary to the Commission’s Section 307(b) mandate.

Moreover, this application proposes a 1st non-commercial educational service to 3,339 people and 2nd such service to 12,366 people, for a total of 15,705 receiving new 1st or 2nd NCE service. These numbers were calculated by plotting on a map (Figure 14) all noncommercial educational stations in the area with their 60 dBu coverage areas. The enclosed population centroids are shown in red for those people receiving 1st NCE service and green for those people receiving 2nd NCE service. All calculations are based on the 2000 census.

Summary and Conclusion

The applicant has shown that this request will not harm or affect any other station in any way. Because of the singularly unique situation faced by the applicant, an authorized station which is legally precluded from operating at a site meeting the traditional requirements of Section 73.316 of the rules, there will be little if any precedent created by approval of the requested waiver.

The Commission already has made, consistent with the allocation scheme referenced in *American Educational Broadcasting*, an affirmative determination under Section 307(b) of the Act that there is a public need for a new non-commercial educational station at Medford Lakes. And, as shown in this exhibit, a change in location is essential to effectuate that public interest finding. The public interest values embodied in the rules clearly favor an accommodation rather than a rejection here.

Technically, the waiver analysis presented above has validity because of the improvement in antenna technology over the years since the rules were created. The attached document from Shively Labs clearly shows that such an antenna was built and tested, in accordance with standard Commission practices, and that it performs flawlessly. This actual, tested antenna pattern fits within the requested pattern shown on our application, and fills out more than 85% of the pattern as required by the rules. The larger licensed pattern, for which a CP is being sought, as in all cases, will afford the applicant some flexibility should the antenna or tower ever need to be replaced.

Within this document, the applicant has clearly shown:

- 1) The details regarding the loss of original site;
- 2) That there are no other transmitter sites available;
- 3) That there are no other towers available;
- 4) That there are no other channels available; and
- 5) A request for a waiver from 47 CFR §73.316.

With regards to the waiver request, the applicant has shown:

- 1) All possible options were considered;
- 2) The requested waiver is clearly the best approach;
- 3) The applicant cannot construct the station without some type of waiver;
- 4) A situation of coverage vs. no coverage and station vs. no station;
- 5) There will be no harm to any station;
- 6) A singularly unique situation;
- 7) There is no far reaching negative impact to the Commission's rules; and
- 8) The Commission has delegated authority to grant such a waiver.

Request for Waiver of CFR 47 §73.316

To the extent that a waiver of CFR 47 §73.316 is required, the same is hereby respectfully requested.

The applicant has made a clear showing that they are following the proper rules, serving the proper area and providing the proper coverage.

Given the singularly unique circumstances facing this applicant with regard to transmitter site location, having been discussed in detail above, and given the attached showing demonstrating the implications of a waiver from CFR 47 §73.316, the applicant believes that this proposal represents it's only viable option to provide service to Medford Lakes, New Jersey while complying with the Commission's Rules and regulations.

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FMSR™: WVBV at AC Expressway site.map

Interference contour study

Propagation methods:

service contour	: FCC-FCC	50.0
2nd adjacent interference	: FCC-EDX	10.0
3rd adjacent interference	: FCC-EDX	10.0

=	60.0 dBuV/m service contour
=	100.0 dBuV/m 2nd adjacent interference
=	100.0 dBuV/m 3rd adjacent interference

FM Allocation Map

- Proposed coverage contours
- Proposed interference contours
- Spacing arcs
- Existing coverage contours
- Existing interference contours
- Reference Grid (spacing: 30')



Medford Lakes, NJ
WVBV 2nd & 3rd Adjacent Channel Study

